The Papé Group, Inc.

PAPÉ® Keeps You Moving®

Jordan Papé

Private Sector

- President and CEO, The Papé Group, Inc
  2013-Present
- Director, OneH2
  2019-Present
- Director, Owl Peak Labs
  2021-Present
- Past Chair, Oregon Business and Industry
  2013-Present
- Executive Director, Oregon Business Council
  2017-Present
- Past Chair, YPO Oregon
  2023-Present

Education

- University of Oregon, MBA
  2005
- University of Colorado,
  B.S. Business Administration
  2001

Public Appointments

- Sustainable Health Care Cost Growth Target Committee 2019-2021
- Medicaid Budget Task Force Committee
  2018
- DAS Employee Compensation Committee
  2018
- Public/Private Healthcare Alignment Workgroup 2011

Recognition

- Oregon Historical Society, History Maker Award 2024
- OSU College of Business, Excellence in Family Business Award 2022
- CU Boulder, Leeds School of Business, Distinguished Alumni Award 2019
- Governor’s Gold Award Recipient
  2017

Provider of Alternative Fueling Solutions

PACIFIC CLEAN FUELS

ONEH2®

- **Pacific Clean Fuels:**
  - A Papé Company
  - Commercializing Hydrogen
  - Sourcing RNG
  - Installing Charging Stations

- **ONEH2:**
  - A Papé Investment
  - Manufacturer of Hydrogen Production
  - Equipment
    - H600 ATR generates 600kg within a High Cube
    - M400 stores, transports and pumps hydrogen fuel
    - Unique 930 bar universal fueling solution for Heavy Duty and Passenger vehicles

PAPÉ

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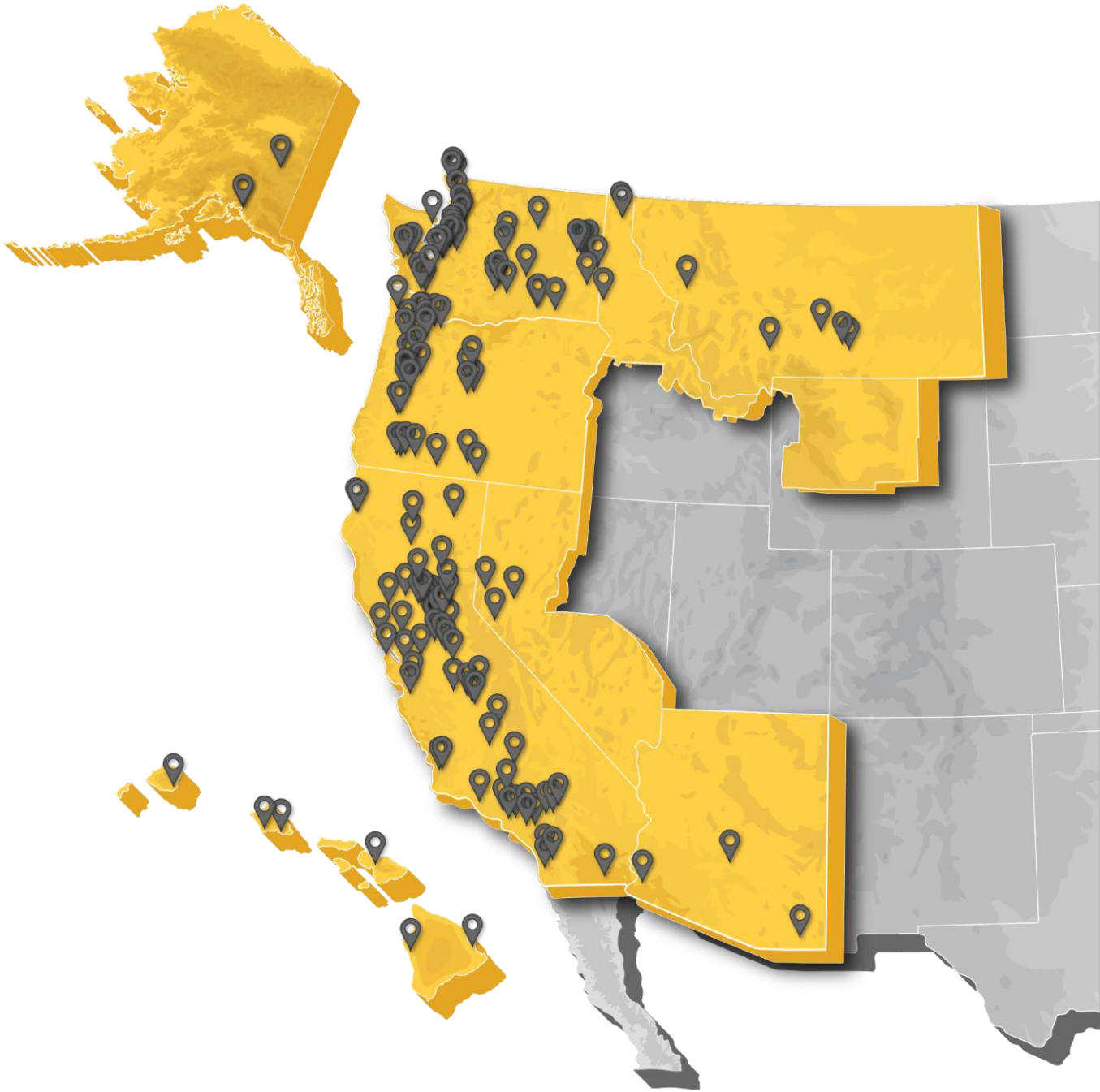
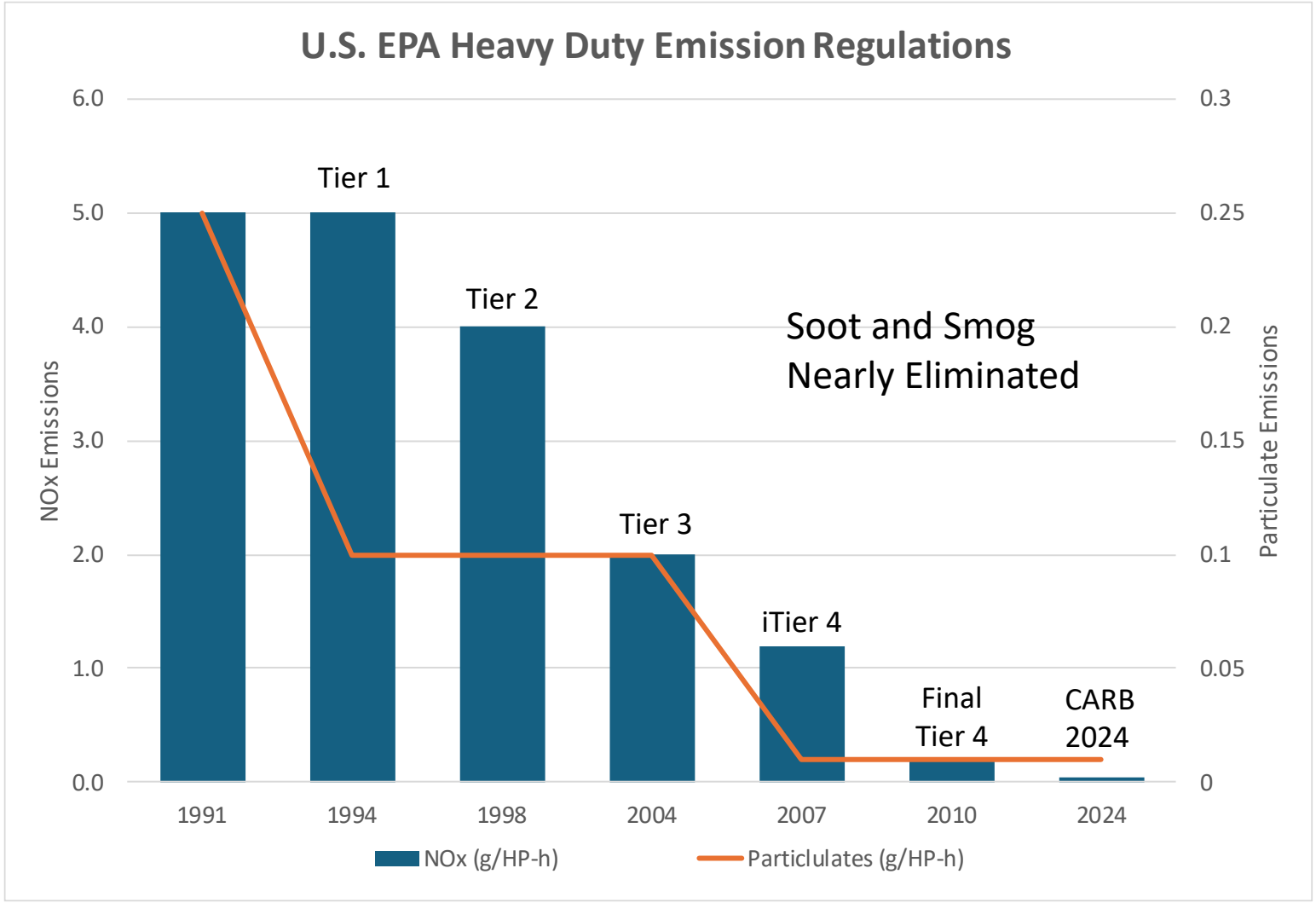


The Impact of Diesel Tech

Eliminated Over 98% of NOx & PM

2026 Year Engines Eliminate 99.8%



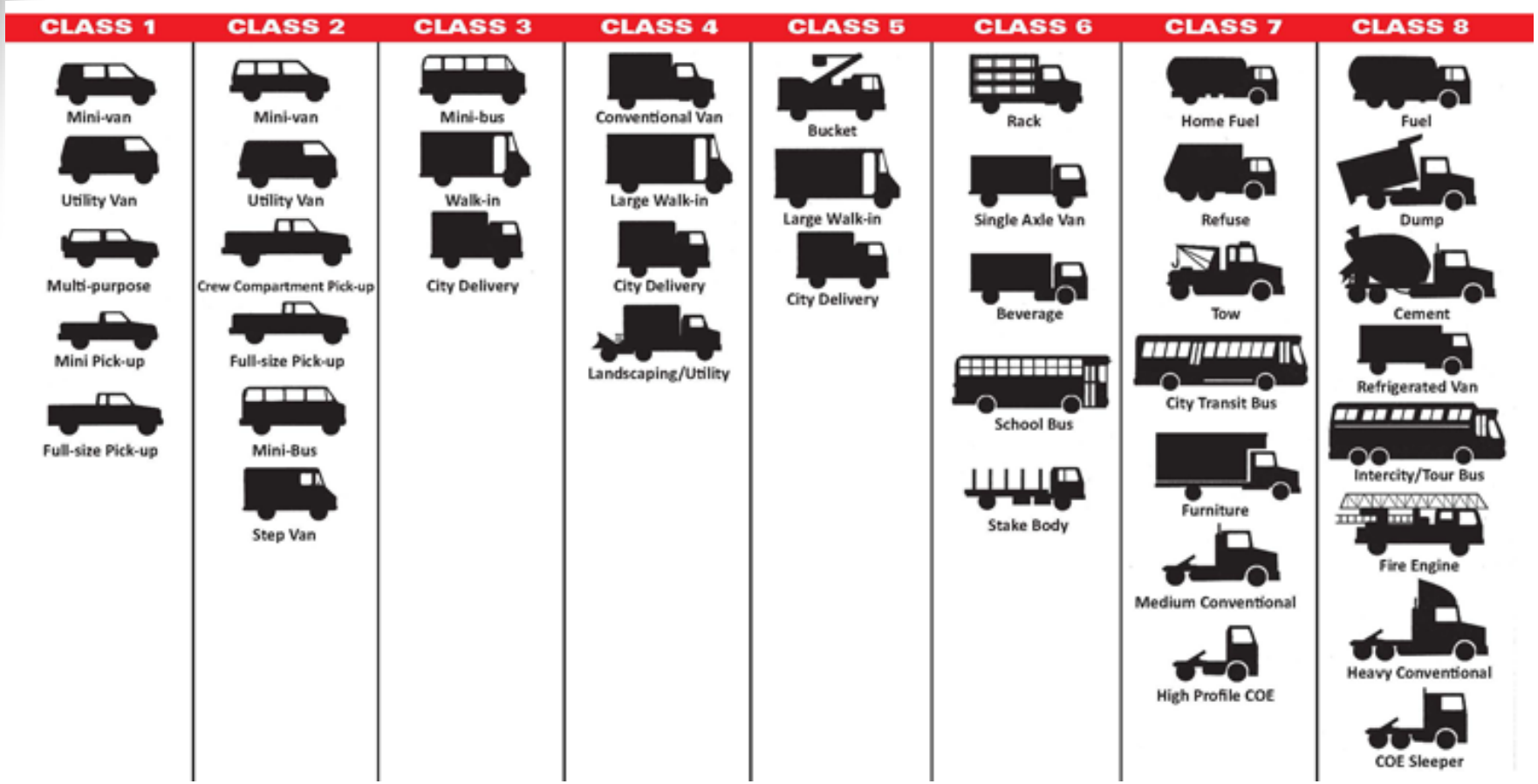
Leaving the Warehouse

Battery Electric Trucks Don’t Measure Up Yet

- Heavy-duty BEV trucks cost 2x MORE than conventional ICE trucks
- In a full day of driving an ICE can go as far as 400-500 mi. HD BEV may go 200 mi.
- It takes nearly 2x the number of EV trucks & 2x the drivers to haul ¾ of the load
- ~100 BEV heavy-duty trucks consume the same power as all the homes in Eugene
- Charging times range from 1.5-2 hours using DC Fast Chargers

Charging Challenge By Vehicle Class

Bonneville Power Administration Produced Enough Power Last Year to Only Charge the N. American Class 8 Diesel Truck Market If Those Trucks Were Converted to Battery Electric



Hard to Play Catch-Up with a Runaway Train

Advanced Clean Truck (ACT)

- Mandate on OEMs
- Percentages of Total Vehicle Sales as ZEVs
- 2036 - 100% of Sales Must be Zero Emissions

Model Year	Class 4-8 Vocational	Class 7-8 Tractors
2024	9%	5%
2025	11%	7%
2026	13%	10%
2027	20%	15%
2028	30%	20%
2029	40%	25%
2030	50%	30%
2035	75%	40%
2036	**100%**	**100%**

Slow is Smooth
Smooth is Fast

We Need a Bigger Table to Create Successful Adoption

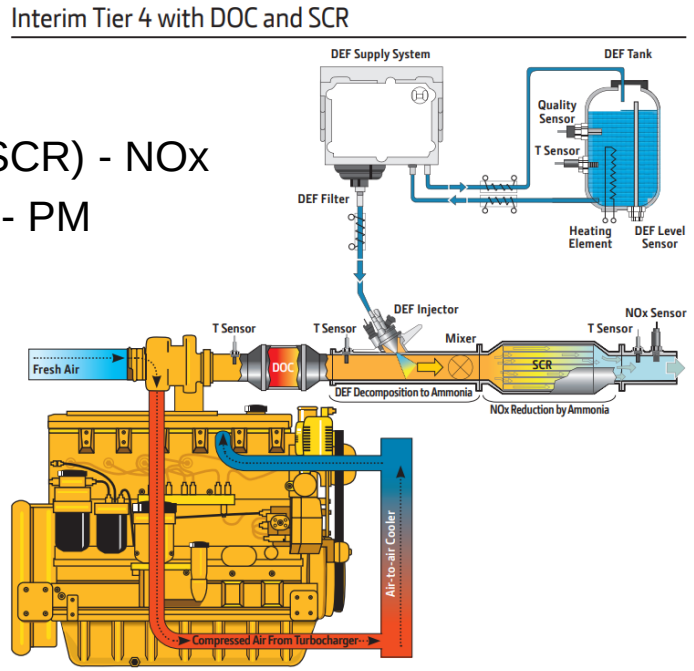
- **Transportation Professionals Need a Place at the Table:**
  - Advanced Clean Trucks lacks customer alignment by fleet type
  - BEV transportation often can't do the job
  - The industry is short of drivers, how are we planning to double drivers?
- **Credible Alternative Fuel Providers Need a Place at the Table**
  - BEV chargers require at least 10x the space of fuel pumps
  - Permitting for new technologies needs government support
  - Spot rates for hydrogen fuel will crush the industry before it launches
  - Utility companies are not able to provide timely service to the grid
- **Manufacturers of On-Highway Trucks Need a Voice**
  - Supply chains for new technologies are fragile and VERY Expensive
  - Critical inputs are scarce (lithium, carbon fiber, stainless-steel)
- **Critical Industries Need a Place at the Table**
  - We need a clear understanding of the impact of dramatically higher transportation costs and disrupted supply chains.
- **Financial Institutions Need to Weigh In on Financing**
- **Consumers Need to Weigh In on the Burden of Higher Costs**

Appendix

Improving Proven Technology

Today's Diesel

- **Primary Components:**
  - Ultra Low Sulfer Diesel
  - Advanced Engine Technology
  - Aftertreatment
    - Selective Catalytic Reduction (SCR) - NOx
    - Diesel Particulate Filters (DPF) - PM



- **Advantages:**
  - Relatively Low Cost
  - Supply Chains are Intact
  - Adoption Remains the Default
  - Perceived Safety

- **Challenges:**
  - New Technology is Expensive and Often Fragile
  - New Habits, Like DPF Regenerations Create Tension

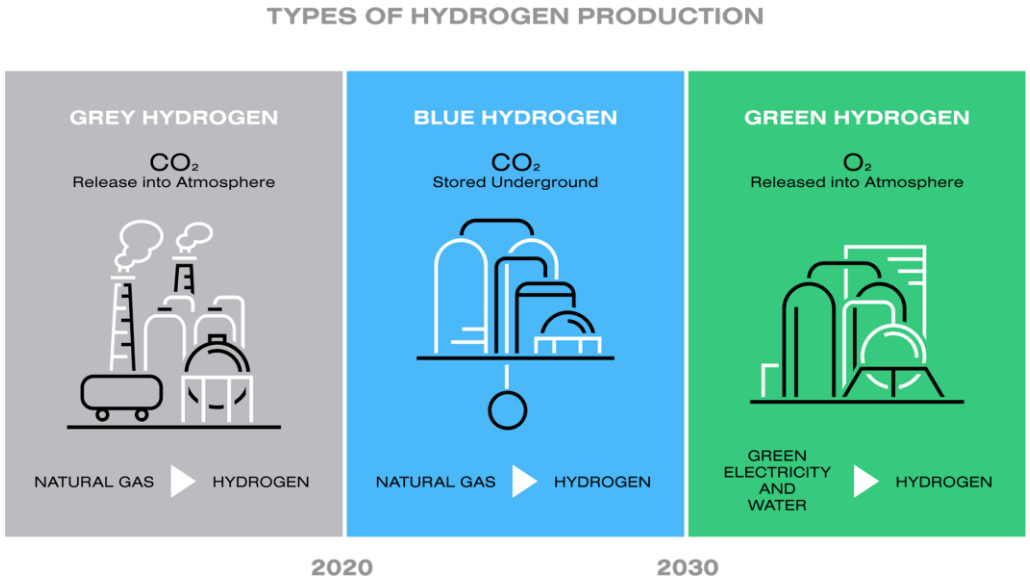
Hydrogen as Fuel

Abundant Element, Zero Tailpipe Emissions

- **Overall Benefits:**
  - Most Abundant Element on the Planet
  - Refueling time is similar to current diesel refueling times
  - Storage is Lighter than Batteries
  - Methane is 84x more powerful greenhouse gas than CO_2 on 20yr cycle
  - Lends Itself to Centralized Carbon Capture
- **Overall Challenges**
  - Very Difficult to Transport Limits Production at Scale
  - Very Difficult to Permit an Unfamiliar Process
- **Processes to Create Fuel Grade Hydrogen:**
  - Autothermal Reforming (ATR)
    - Steam Reforming: $CH_4 + H_2O$ (+ heat) $\rightarrow CO + 3H_2$
    - Partial Oxidization: $CH_4 + ½\ O_2 \rightarrow CO + 2H_2$
    - Water-Gas Shift: $2CO + 2H_2O \rightarrow 2CO_2 + 2H_2$
    - Net: $7H_2 + 2CO_2$
  - Electrolysis:
    - $2\ H_2O \rightarrow O_2 + 4H+ + 4e-$ Cathode Reaction: $4H+ + 4e- \rightarrow 2H_2$

Hydrogen Grading

Hydrogen Requires <u>All Types</u> to Reach Economic Sustainability



- **Challenges:**
  - Green Hydrogen requires over 85 kWh to produce a kilo of Hydrogen
  - Grey and Blue hydrogen produce a kilo of Hydrogen 0-10 kWh
- **Comparing Hydrogen to BEVs and HFEV:**
  - You can produce hydrogen fuel for 250 trucks in the same footprint required to charge 24 trucks, in 24 hours. 1/10th the space. Land is EXPENSIVE.
  - Refueling with hydrogen takes 20 minutes, compared to 2+ hours to recharge a BEV. 1/6th the fueling time.
  - ATR requires about 40% of the electricity of BEV, 10% of Green Hydrogen

Hybrids, Autonomous, & Aerodynamics

Analyzing Every Ounce Of Weight & Drag